United Nations
Economic Commission for Europe

Food and Agriculture Organization
of the United Nations

ECE/TIM/BULL/48/4

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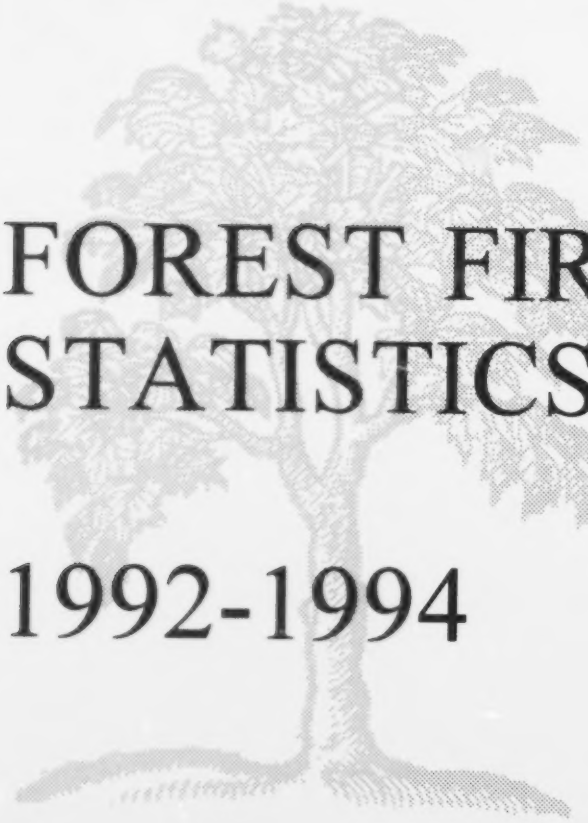

FOREST FIRE STATISTICS

1992-1994

UNITED NATIONS

ECE/TIM/BULL/48/4

United Nations Economic Commission for Europe
Food and Agriculture Organization
of the United Nations

Timber Section
Geneva, Switzerland

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UNITED NATIONS
New York and Geneva, 1995

NOTE

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* *

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ABSTRACT

Forest fire Statistics 1992-1994 provides statistics on forest fires in the UN-ECE region, Europe, North America and the countries of the former USSR. Shown are the number and size of fires, their causes, their losses by volume and value, forest types and ownerships affected, and expenditures on prevention and control. Previous editions were published under the ECE/TIM series, since last year they have been part of the *Timber Bulletin*.

ECE/TIM/BULL/48/4

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FOREST FIRE STATISTICS 1992-1994

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PREFACE

The present document contains the results of the ninth enquiry on forest fire statistics [1/], carried out in 1995 by the Joint FAO/ECE Working Party on Forest Economics and Statistics, with the approval of its parent bodies, the ECE Timber Committee and the FAO European Forestry Commission.

The previous edition of Forest Fire Statistics covered the period 1991-1993. The present publication extends the coverage of Forest Fire Statistics officially collected by FAO/ECE, to the year 1994. Since the second edition, the form of enquiry has been kept unchanged. It was decided at the seventeenth session of the Working Party that henceforth these enquiries should be carried out on an annual basis.

Twenty one countries replied to the enquiry [2/]. Sweden has discontinued the collection of forest fire statistics, but has nevertheless provided estimates for the fire season of 1994. Tables 1 and 2 summarize the data for the years 1983 to 1994, while the remainder give the information for the years covered by the latest enquiry (1992 to 1994), in most cases 1994 data should be treated as provisional. Not all the countries were able to reply fully to the enquiry. The information presented in this document can nevertheless be said to provide a reasonable coverage of forest fires in Europe, as the great majority of fires occur in the Mediterranean region, for which most of the data were available. The data for North America and the countries of the former USSR also provide a good coverage of the forest fire situation.

The information contained herein is obtained mainly from official national sources, to which the secretariat expresses its appreciation for the work entailed in preparing replies to the enquiry. Nevertheless the present document is published on the responsibility of the secretariat.

FAO/ECE continues to publish on a twice-yearly basis another publication on forest fires. It is entitled "International Forest Fire News" and is a collection of information, in newsletter style, of recent and coming events, meetings, publications, etc. concerned with forest fire. Copies of the IFFN may be obtained, free of charge, from:

Timber Section
UN-ECE Trade Division
Palais des Nations
CH - 1211 GENEVA 10
Switzerland

FAX +41 22 917 0041

* *

Symbols used

m3	cubic metre, solid volume
ha	hectare
-	nil
0	negligible
.	not applicable
...	not available
*	unofficial figure or secretariat estimate

* *

1/ Supplement 10 to volume XXXIV of the *Timber Bulletin for Europe*, January 1982; Supplement 7 to volume XXXVI of the *Timber Bulletin for Europe*, February 1984; ECE/TIM/32, 1986; ECE/TIM/41, 1988; ECE/TIM/51, 1990; ECE/TIM/58, 1992; ECE/TIM/70, 1993; *Timber Bulletin* ECE/TIM/BULL/47/4, 1994.

2/ Albania, Austria, Cyprus, Estonia, France, Germany, Italy, Latvia, Lithuania, Luxembourg, Moldova, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland, Turkey, and the United States of America.

Table 1

Total number of fires on forest and other land

(Number)

Country	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Albania	96	192	71	134	102	121	70	269	147	695	560	585
Austria	235	228	152	138	98	124	88	225	78	165	178	94
Belgium	107	140	39	79	46	24	103	82	65	26	36	42 *
Bulgaria	104	47	165	68	76	140	63	208	73	602	1196	624 *
Cyprus	55	76	74	50	62	86	66	64	47	18	16	35
former Czechoslovakia .	699	558	295	552	249	515	452	1254	.	.	.	.
– Czech Rep	.	.	.	.	.	.	.	.	961	2586	1951	1833 *
– Slovakia	.	.	.	.	.	.	.	.	...	...	...	...
Denmark	18	17	6	10	11 *	11 *	11 *	2	–	2	1 *	1 *
Finland	271	464	502	717	285	621	617	571	287	852	570 *	570 *
France	4659	5672	6249	4353	3043	2837	6743	5881	3888	4008	4765	4747
Germany	1718	1772	1131	1227	1093	1168	1415	1610	1846	3012	1694	1696
Greece	968	1284	1442	1082	1266	1898	1284	1322	858	2582	2546	2325 *
Hungary	220	402	200	576	393 *	393 *	393 *	393 *	393 *	393 *	393 *	393 *
Ireland a/	316	1194	478	490	721 *	721 *	721 *	721 *	194	156	123	158 *
Israel	1233	908	834	577	1035	1354	1024	1133	1170 *	1170 *	1170 *	1170 *
Italy	7956	8482	18664	9388	11972	13558	9669	14477	11965	14545	15380	8655
Luxembourg	13	10	10	5	5	1	–	23	11	8	12	6
Netherlands	127	168	75	120	90	79	118	95	117	76	96 *	96 *
Norway	354	495	329	301	286	448	390	578	976	892	253	471
Poland	3335	3043	1498	2766	1222	2781	4100	4137	3008	9305	4421	5152
Portugal	4503	6377	7218	4348	6977	5643	20155	18507	13118	14954	16101	21432
Romania	60	52 *	52 *	52 *	52 *	18	43	134	44	187	160	121
Spain	4880	7224	12284	7574	8679	9595	20384	12474	13011	15895	14241	19215
Sweden b/	...	...	...	...	...	...	...	...	...	...	...	...
Switzerland	106	146	116	76	70	55	150	216	157	111	99	54
Turkey	968	1433	1793	1526	1310	1367	1633	1725	1445	2110	2547	3221
United Kingdom c/	492	1288	623	302	149	299	98	412	475	328 *	328 *	328 *
former Yugoslavia, d/	1080	729	1514	501	746	668	408	1327	.	.	.	.
– Croatia	.	.	.	.	.	.	.	.	218	325	372	305 *
– Slovenia	.	.	.	.	.	.	.	.	66	113	211	66
EUROPE	***34650***	***42478***	***55891***	***37089***	***40115***	***44602***	***70275***	***67917***	***54695***	***75193***	***69497***	***73472***
former USSR	10141	12953	10200	13296	11304	16432	18751	17672	.	.	.	.
Azerbaijan	.	.	.	.	.	.	.	.	6	1	8	5 *
Belarus	.	.	.	.	.	.	.	.	1517	7743	1887	3716 *
Estonia	.	.	.	.	.	.	.	.	39	348	207	289
Latvia	.	.	.	.	.	.	.	.	1110 *	1510	965	854
Lithuania	.	.	.	.	.	.	.	.	147	1154	635	714
Moldova	.	.	.	.	.	.	.	.	18	14	1	33
Russian Federation	.	.	.	.	.	.	.	.	17965	25777	18428	20723 *
Ukraine	.	.	.	.	.	.	.	.	2771	5869	2967	3869 *
TOTAL	***10141***	***12953***	***10200***	***13296***	***11304***	***16432***	***18751***	***17672***	***23573***	***42416***	***25098***	***30203***
Canada	8930	9568	9357	7087	11304	10741	12185	10111	10334	9069	5846	8416 *
United States e/	95169	181466	138521	138696	147146	153662	121226	119818	118796 *	176536 *	153023 *	153023 *
NORTH AMERICA	***104099***	***191034***	***147878***	***145783***	***158450***	***164403***	***133411***	***129929***	***129130***	***185605***	***158869***	***161439***

a/ Ireland: State forests only

b/ Sweden: the collection of forest fire statistics was discontinued in 1980. Data for 1992 – 1994 are based on estimates (applies also to other tables)

c/ United Kingdom: State forests only. Periods reported are financial years running from April to March of the following year

d/ Yugoslavia: data provided by Yugoslavia prior to 1 January 1992 refer to the Socialist Federal Republic of Yugoslavia which was composed of six republics (applies also to data in other tables)

e/ United States: protected land only (applies also to data in other tables)

Table 2

Total area burned on forest and other land

(Hectares)

Country	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Albania	47	266	90	285	390	156	118	417	250	1011	522	705
Austria	190	304	83	99	53	87	52	200	53	132	112	57
Belgium	115	159	67	103	46	22	687	20	54	16	107	59 *
Bulgaria	132	103	1382	354	508	544	223	1041	511	5243	18164	7973 *
Cyprus	3718	3771	4965	1749	1550	4083	1485	1452	108	9	69	178
former Czechoslovakia	492	565	170	727	265	387	250	976	.	.	.	.
– Czech Rep	.	.	.	.	.	.	.	.	76	1278	1155	836 *
– Slovakia	.	.	.	.	.	.	.	.	...	...	...	...
Denmark	7	16	136	6	53 *	53 *	53 *	137	–	277	138 *	138 *
Finland	100	301	238	367	153	289	516	433	226	1082	580 *	580 *
France	53729	27202	57368	51860	14108	6701	75566	72625	10130	16605	16695	24460
Germany	1258	1341	708	759	785	748	747	947	920	4908	1493	1114
Greece	19613	33655	105450	24514	46315	110501	42363	38594	13046	71410	48800	60632 *
Hungary	696	1467	770	1810	1349 *	1349 *	1349 *	1349 *	1349 *	1349 *	1349 *	1349 *
Ireland a/	170	1450	356	713	840 *	840 *	840 *	840 *	667	569	540	592 *
Israel	4788	1740	1476	671	3782	14615	6315	5850	8927 *	8927 *	8927 *	8927 *
Italy	223728	78326	189898	86420	120697	186405	95161	195319	99860	105695	203143	119414
Luxembourg	6	8	4	2	2	–	3 *	9	4	2	7	2
Netherlands	399	212	34	279	115	80	99	224	414	174	271 *	271 *
Norway	163	2846	244	595	335	215	992	87	530	1370	224	232
Poland	4147	5641	1659	3382	1454	3063	5086	5029	2110	33334	3677	2503
Portugal	47812	52713	146255	99522	76268	22435	126235	129839	182486	59071	49963	39146
Romania	146	172 *	172 *	172 *	172 *	15	101	456	277	730	545	311
Spain	117599	164546	486327	277071	145793	127955	410181	204043	244706	104592	89267	432252
Sweden b/	...	...	...	...	...	...	...	...	...	5808	1000	2085
Switzerland	464	320	213	63	312	183	213	1102	148	52	42	293
Turkey	3556	7358	26006	11037	10746	17032	12348	13000	7642	12312	13734	20997
United Kingdom c/	143	1730	568	122	61	106	312	464	114	194	123	144 *
former Yugoslavia d/	20585	10314	42791	8973	14183	14896	6394	25300	.	.	.	.
– Croatia	.	.	.	.	.	.	.	.	4535	11131	20164	11943 *
– Slovenia	.	.	.	.	.	.	.	.	713	530	1863	912
EUROPE	***504220***	***396944***	***1067847***	***572073***	***440752***	***513177***	***788105***	***700169***	***580272***	***447809***	***482673***	***738104***
former USSR	235300	491500	684800	1091300	1217700	959500	1831000	1669911	.	.	.	.
Azerbaijan	.	.	.	.	.	.	.	.	60	28	28	39 *
Belarus	.	.	.	.	.	.	.	.	319	23822	1618	8586 *
Estonia	.	.	.	.	.	.	.	.	58	1787	647	456
Latvia	.	.	.	.	.	.	.	.	3096	8366	571	350
Lithuania	.	.	.	.	.	.	.	.	54	863	304	301
Moldova	.	.	.	.	.	.	.	.	20	22	2	215
Russian Federation	.	.	.	.	.	.	.	.	1126222	1142775	1200435	1156477 *
Ukraine	.	.	.	.	.	.	.	.	1781	4252	3214	3082 *
TOTAL	***235300***	***491500***	***684800***	***1091300***	***1217700***	***959500***	***1831000***	***1669911***	***1131610***	***1181916***	***1206819***	***1169507***
Canada	1194175	765382	757260	950123	1085629	1336070	7559570	930918	1566910	868763	1967388	1467687 *
United States e/	793500	1229887	2125529	1291448	2017058	2994227	1320972	2207470	1114464 *	1283338 *	1831195 *	1409666 *
NORTH AMERICA	***1987675***	***1995269***	***2882789***	***2241571***	***3102687***	***4330297***	***8880542***	***3138388***	***2681374***	***2152101***	***3798583***	***2877353***

a/ Ireland: State forests only

b/ Sweden: the collection of forest fire statistics was discontinued in 1980. Data for 1992 – 1994 are based on estimates (applies also to other tables)

c/ United Kingdom: State forests only. Periods reported are financial years running from April to March of the following year

d/ Yugoslavia: data provided by Yugoslavia prior to 1 January 1992 refer to the Socialist Federal Republic of Yugoslavia which was composed of six republics (applies also to data in other tables)

e/ United States: protected land only (applies also to data in other tables)

Table 3
Area burned by type of land
(Hectares)

Country	Total			Forest and other wooded land						Other land		
				Total			of which, high forest					
	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania	1011	522	705	1011	522	705	1011	522	705	...	...	...
Austria	132	112	57	132	112	57	132	112	57	...	...	...
Azerbaijan	28	28	...	28	28	...	28	28	...	...	...	...
Belarus	23822	1618	...	18551	1253	...	...	...	...	5271	365	...
Belgium	16	107	...	16	11	...	15	9	...	–	96	...
Bulgaria	5243	18164	...	5243	18164	...	4154	10147	...	...	...	...
Croatia	11131	20164	...	6624	14109	...	1699	3624	...	4507	6055	...
Cyprus	9	69	178	9	69	178	...	...	178	...	...	...
Czech Rep	1278	1155	...	1278	1155	...	1278	1155	–	...	...	...
Denmark	277	...	...	67	...	...	67	...	...	210	..	...
Estonia	1787	647	456	1129	423	242	782	128	127	658	224	214
Finland	1082	...	...	1082	...	...	1082	...	...	...	...	...
France	16605	16695	24460	...	...	...	...	...	...	...	...	...
Germany	4908	1493	1114	4908	1493	1114	4908	1493	1114			
Greece	71410	48800	60632	49555	48800	39595	49555	48800	39595	21855 ...		21037
Ireland	569	540	...	152	63	...	148	54	...	417	477	...
Italy	105695	203143	119414	39659	104385	38172	12476	43990	20310	66036	66036	69811
Latvia	8366	571	350	3002	387	311	3002	288	195	5365	184	39
Lithuania	863	304	301	792	293	292	522	274	195	72	12	10
Luxembourg	2	7	2	2	7	2	2	2	2	–	–	–
Moldova	22	2	215	18	2	79	18	–	79	4	–	136
Netherlands	174	...	...	21	...	...	21	...	...	153	...	...
Norway	1370	224	232	1370	224	232	1370	224	232	...	...	...
Poland	33334	3677	2503	33334	3677	2503	33334	3677	2503	...	...	...
Portugal	59071	49963	39146	57502	49963	39146	33515	21782	10121	1569	...	...
Romania	730	545	311	730	545	311	722	541	310	...	...	...
Russian Federation	1142775	1200435	...	1142775	1200435	...	691478	748619	...	...	...	...
Slovenia	530	1863	912	420	1453	879	195	323	433	110	410	33
Spain	104592	89267	432252	42517	34975	248408	39961	33388	...	62075	54292	183844
Sweden	5808	1000	2085	5808 ...		2085	3251	...	1580	...	...	...
Switzerland	52	42	293	52	42	293	52	42	293	...	...	...
Turkey	12312	13734	20997	12312	13734	20997	7951	9520	20155	...	...	...
Ukraine	4252	3214	...	4101	3178	...	4101	3178	...	151	36	...
United Kingdom	194	123	...	194	123	...	194	123	...	...	...	...
Canada	868763	1967388	...	868763	1967388	...	868763	1967388	...	...	...	...
United States	1283338	1831195	...	...	...	...	...	...	...	...	...	...

Table 4
Forest area burned by type of land
(Hectares)

Country	Forest and other wooded land											
	High forest						Coppice and coppice with standards			Other wooded land		
	Coniferous			Broadleaved								
	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
b/ Austria	132	112	57	.	.	.	...	...	...	...	...	...
Azerbaijan	–	–	...	28	28	...	...	...	...	...	...	...
Belgium	15	5	...	1	3	...	0	3	...	–	–	...
Bulgaria	2611	6956	...	1543	3191	...	810	7401	...	279	616	...
Croatia	1461	3119	...	238	505	...	2150	4578	...	2775	5907	...
b/ Cyprus	9	69	178	.	.	...	...	...	...	...	...	...
b/ Czech Rep	1278	1155	...	.	.	...	...	...	...	...	...	...
b/ Denmark	67	...	...	.	.	...	...	...	...	...	...	...
Estonia	726	111	83	56	17	44	243	176	43	104	119	72
b/ Finland	1082	...	...	.	...	...	.	...	...	.	...	...
Germany	3864	1214	944	1044	279	170	...	...	...	...	...	...
b/ Greece	49555	48800	39595	.	.	.	...	...	...	...	...	...
Ireland	148	54	...	–	–	...	...	...	...	4	9	...
a/ Italy	5163	15777	5238	5470	20249	11095	21526	50828	12277	5657	9567	5585
Latvia	...	275	185	...	13	10	...	61	80	...	38	37
Lithuania	508	200	192	14	29	3	195	49	49	74	14	48
Luxembourg	1	3	2	1	3	–	0	2	0	...	...	...
b/ Moldova	18	2	79	.	.	.	...	...	...	...	...	...
Netherlands	19	...	...	2	...	...	...	...	...	...	...	...
b/ Norway	1370	224	232	.	.	.	...	...	...	...	...	...
b/ Poland	33334	3677	2503	...	...	...	...	...	...	...	...	...
Portugal	30838	18601	10121	2677	3208	...	5538	2030	...	18449	26124	29025
Romania	114	88	33	608	453	277	–	–	–	8	4	1
b/ Russian Federation	691478	748619	...	.	.	...	.	.	...	451297	451816	...
Slovenia	193	315	433	2	8	–	64	725	214	161	405	233
Spain	25045	25612	...	14916	7777	...	...	...	...	2556	1586	...
b/ Sweden	3251	...	1580	.	...	.	–	–	–	2287	...	505
b/ Switzerland	52	42	293	.	.	.	...	...	...	...	...	...
b/ Turkey	7951	9520	20155	.	.	.	12	808	41	4349	3406	801
b/ Ukraine	4101	3178	...	.	.	...	...	...	...	...	...	...
b/ United Kingdom	194	123	...	.	.	...	...	...	...	...	...	...
b/ Canada	868763	1967388	...	.	.	...	...	...	...	...	...	...

a/ Italy: "Coniferous" includes mixed forests, 1992: 1823 ha; 1993: 7964 ha; 1994: 3977ha.
b/ "Coniferous" includes broadleaved high forest

Table 5

Area burned by type of ownership

(Hectares)

Country	Total			Forest and other wooded land			Other wooded land		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
					Publicly owned				
a/ Azerbaijan	28	28	...	28	28	...	...	...	...
Belgium	7	60	...	7	7	...	–	52	...
a/ Bulgaria	5243	18164	...	5243	18164	...	–	–	–
Croatia	8821	9683	...	5311	6673	...	3510	3010	...
Cyprus	9	69	178	9	69	178	–	–	–
a/ Denmark	277	...	...	67	...	...	210	...	...
a/ Estonia	1787	647	456	1129	423	242	658	224	214
Germany	4140	846	886	4140	846	886	...	...	...
Ireland	252	143	...	152	63	...	100	80	...
Italy	43334	86244	60901	...	...	...	...	...	...
Latvia	8366	551	310	3002	367	278	5365	184	33
Lithuania	846	285	292	774	273	282	72	12	9
Luxembourg	2	6	2	2	6	2	...	...	...
a/ Moldova	22	2	215	18	2	79	4	–	136
Netherlands	123	...	...	3	...	...	120	...	...
a/ Poland	33334	3677	2503	33334	3677	2503	–	–	–
Portugal	3465	13855	...	3465	10081	...	...	3774	...
a/ Romania	730	545	311	722	541	310	8	4	1
a/ Russian Federation	1142775	1200435	...	691478	748619	...	451297	451816	...
Slovenia	172	822	222	116	668	212	56	155	10
Spain	48006	40822	...	23167	20502	...	24840	20320	...
a/ Turkey	12312	13734	20997	12312	13734	20997	...	...	...
a/ Ukraine	4252	3214	...	4101	3178	...	151	36	...
a/ United Kingdom	194	123	...	194	123	...	...	...	...
					Privately owned				
Belgium	8	48	–	8	4	25087	–	44	...
Croatia	2310	10481	–	1313	7436	25087	997	3045	...
Germany	768	647	228	768	647	228	...	...	...
Ireland	317	397	–	–	–	–	317	397	–
Italy	62361	116899	58513	...	...	...	...	...	...
Latvia	–	20	40	...	20	34	...	...	6
Lithuania	17	20	10	17	20	9	–	–	0
Luxembourg	0	1	–	0	1	–	–	–	–
Netherlands	51	...	–	17	...	...	34	...	...
Portugal	55606	36108	–	55606	13758	...	...	22350	...
Slovenia	358	1041	690	290	793	667	68	248	24
Spain	56586	48445	–	19350	14473	...	37236	33972	...

a/ Countries having reported area burned exclusively in public land

Table 6

Number of fires by known and unknown causes

(Number)

Country	Total			Known causes			Unknown causes		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania	695	560	585	695	560	585	–	–	–
Belarus	7743	1887	...	5458	997	...	49	890	...
Belgium	26	36	...	19	24	...	7	12	...
Bulgaria	602	1196	...	308	423	...	294	773	...
Croatia	325	372	...	180	303	...	145	69	...
Cyprus	18	16	35	12	12	26	6	4	9
Denmark	2	...	...	1	...	...	1	...	...
Estonia	348	207	289	327	153	228	5	54	61
Finland	852	...	...	730	...	...	122	...	...
France	4008	4765	4747	406	...	...	3602	...	...
Germany	3012	1694	1696	1779	1042	1072	1233	652	624
Ireland	156	123	...	127	94	...	29	29	...
Italy a/	14545	15380	8655	6922	10628	4745	786	1304	810
Latvia	1510	965	854	1510	965	854	–	–	–
Lithuania	1154	635	714	1066	565	638	1	70	76
Luxembourg	8	12	6	6	8	1	2	4	5
Moldova	14	1	33	14	1	33	–	–	–
Netherlands	76	...	...	42	...	...	34	...	...
Norway	892	253	471	525	159	372	367	94	99
Poland	9305	4421	5152	6665	3124	3742	2640	1297	1410
Romania	187	160	121	156	119	99	31	41	22
Russian Federation	25777	18428	...	25396	17742	...	516	686	...
Slovenia	113	211	66	68	133	32	45	78	34
Spain	15895	14241	19215	11888	11181	...	4007	3060	...
Switzerland	111	99	54	84	72	46	27	27	8
Turkey	2110	2547	3221	1053	1310	1293	1057	1237	1928
Ukraine	5869	2967	...	5869	2966	...	–	–	–
Canada	9069	5846	...	8740	5710	...	279	136	...

a/ Italy: number of fires on forests only (excluding "other land")

Table 7
Number of fires by known causes
(Number)

Country	Human causes									Natural causes		
	Total,			of which:						Total		
				Arson			Negligence					
	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania	695	560	585	30	20	25	665	540	560	–	–	–
Belarus	5444	995	...	–	–	–	5444	995	...	14	2	...
Belgium	19	24	...	5	2	...	14	22	...	–	–	...
Bulgaria	306	413	...	14	55	...	292	358	...	2	10	...
Croatia	176	282	...	74	165	...	102	117	...	4	21	...
Cyprus	6	11	8	–	1	1	6	10	7	6	1	18
Estonia	323	147	223	59	9	21	264	138	202	4	6	5
Finland	480	...	...	48	...	...	432	...	...	–	...	...
France	388	...	...	121	...	...	267	...	...	18	...	–
Germany	1646	963	941	550	385	345	1096	578	596	133	79	131
Ireland	127	94	...	3	2	...	124	92	...	–	–	...
Italy a/	6885	9940	4652	4950	7636	3543	1935	2304	1109	37	688	93
Latvia	1495	963	846	178	214	140	1317	749	706	15	2	8
Lithuania	1059	563	636	285	109	122	774	454	514	7	2	2
Luxembourg	6	8	1	–	–	–	6	8	1	–	–	–
Moldova	14	1	33	–	–	–	14	1	33	–	–	–
Netherlands	40	...	...	20	...	...	20	...	...	2	...	...
Norway	342	137	169	8	14	25	334	123	144	183	22	203
Poland	6576	3035	3661	2218	1154	1600	4358	1881	2061	89	89	81
Romania	152	108	98	14	10	4	138	98	94	4	11	1
Russian Federation	22873	14938	...	–	–	...	22873	14938	...	2523	2804	...
Slovenia	56	117	21	2	20	4	54	97	17	12	16	11
Spain	11098	10559	...	8473	8036	...	2625	2523	...	790	622	...
Switzerland	75	64	29	7	9	12	68	55	17	9	8	17
Turkey	997	1270	1158	430	541	323	567	729	835	56	40	135
Ukraine	5862	2964	...	–	–	...	5862	2964	...	7	2	...
Canada	4719	3481	...	636	460	...	4083	3021	...	4021	2229	...

a/ Italy: number of fires on forests only (excluding "other land")

Table 8

Number of fires caused by negligence

(Number)

Country	Agricultural operations			Logging and forest operations (including prescribed burning)			Other industrial activities		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Belarus	746	112	...	20	16	...	–	–	...
Belgium	...	–	...	...	14	...	...	–	...
Croatia	45	52	...	–	–	...	–	–	...
Cyprus	–	2	2	–	–	–	–	–	–
Estonia	23	23	19	–	5	3	–	–	–
France	82	...	...	86	...	...	–	...	...
Germany	38	2	36	54	75	46	16	6	5
Ireland	95	72	...	–	–	...	5	7	...
Italy	396	578	355	42	38	43	5	5	9
Latvia	25	45	29	13	18	10	5	1	2
Lithuania	22	19	13	2	1	7	1	–	–
Moldova	–	–	–	–	–	–	–	–	–
Netherlands	–	...	...	–	...	...	–	...	...
Poland	485	196	156	14	17	17	1094	392	448
Romania	44	28	15	2	2	–	1	3	–
Russian Federation	1204	1094	...	377	219	...	643	47	...
Slovenia	31	37	6	7	24	–	1	–	–
Spain	1015	816	...	402	272	...	50	74	...
Switzerland	10	3	–	11	6	1	3	7	–
Turkey	–	–	–	–	–	–	–	–	–
Ukraine	147	53	...	22	5	...	67	18	...
Canada	1317	1114	...	262	243	...	320	248	...

Country	Communications			General public			Other		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Belarus	312	33	...	4366	834	...	–	–	...
Belgium	...	–	...	...	7	...	...	1	...
Croatia	–	–	...	–	–	...	57	65	...
Cyprus	–	–	–	–	6	4	6	2	1
Estonia	17	17	25	218	91	155	6	2	–
France	–	...	...	59	...	...	40	...	...
Germany	120	56	52	275	238	291	593	201	166
Ireland	–	–	...	24	13	...	–	–	...
Italy	3	7	6	46	42	16	1443	1634	680
Latvia	35	55	15	1225	596	632	14	34	18
Lithuania	27	27	20	722	405	472	–	2	2
Moldova	–	–	–	14	1	33	–	–	–
Netherlands	–	...	...	14	...	...	6	...	...
Poland	396	176	212	2204	1030	1185	165	70	43
Romania	–	6	–	85	55	78	6	4	1
Russian Federation	–	568	...	20608	13010	...	41	–	...
Slovenia	6	21	7	6	13	–	3	2	4
Spain	145	177	...	579	758	...	434	426	...
Switzerland	3	4	1	39	31	14	2	4	1
Turkey	3	–	50	38	60	10	526	669	775
Ukraine	–	–	...	5626	2888	...	–	–	...
Canada	169	92	...	1248	829	...	767	495	...

Table 9

Area of fires by known and unknown causes

(Hectares)

Country	Total			Known causes			Unknown causes		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania	1011	522	705	1011	522	705	–	–	–
Belgium	16	107	...	–	43	...	–	64	...
Bulgaria	5243	18164	...	1647	7164	...	3596	11000	...
Croatia	11131	20164	...	6165	16416	...	4966	3748	...
Cyprus	9	69	178	3	68	6	6	1	172
Denmark	277	...	...	127	...	...	150	...	...
Estonia	1787	647	456	1324	505	371	463	142	85
Finland	1082	...	...	895	...	...	187	...	...
Germany	4908	1493	1114	3229	753	656	1679	740	458
Ireland	569	540	...	448	398	...	121	142	...
Italy a/	105695	203143	119414	36072	95432	30258	3587	8953	7914
Latvia	8366	571	350	...	571	350	...	–	–
Lithuania	863	304	301	812	227	266	51	78	35
Luxembourg	2	7	2	1	6	0	1	2	2
Moldova	22	2	215	22	2	215	–	–	–
Netherlands	174	...	...	129	...	...	45	...	...
Norway	1370	224	232	258	162	210	1112	62	22
Poland	33334	3677	2503	24725	2641	1944	8609	1036	559
Romania	730	545	311	620	394	257	110	150	54
Slovenia	530	1863	912	205	1070	81	325	793	831
Spain	104592	89267	432252	73892	74111	...	30700	15156	...
Switzerland	52	42	293	27	31	284	24	11	9
Turkey	12312	13734	20997	6618	9157	13629	5694	4577	7368
Canada	868763	1967388	...	864960	1966970	...	3803	418	...

a/ Italy: area of fires on forests only (excluding "other land")

Table 10

Area of fires by known causes

(Hectares)

Country	Human causes									Natural causes		
	Total,			of which:						Total		
				Arson			Negligence					
	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania	1011	522	705	330	104	176	681	418	529	–	–	–
Belgium	...	43	...	...	0	...	...	43	...	...	–	...
Bulgaria	1644	7080	...	204	1410	...	1440	5670	...	3	84	...
Croatia	6028	15279	...	2534	8940	...	3494	6339	...	137	1137	...
Cyprus	3	68	5	–	22	–	3	46	5	–	–	1
Denmark	–	...	...	–	...	...	–	...	...	127	...	...
Estonia	1321	486	364	154	14	33	1167	472	331	3	19	7
Finland	471	...	...	38	...	...	433	...	...	424	...	...
Germany	2263	741	606	309	178	170	1953	563	436	966	11	50
Ireland	448	398	...	21	3	...	427	395	...	–	–	...
Italy a/	35720	91703	28808	27950	77328	20989	7770	14375	7819	352	3729	1450
Latvia	–	569	348	...	72	64	...	497	285	...	2	2
Lithuania	812	227	266	90	40	74	722	187	192	0	0	0
Luxembourg	1	6	0	–	–	–	1	6	0	–	–	–
Moldova	22	2	215	–	–	–	22	2	215	–	–	–
Netherlands	128	...	...	45	...	...	83	...	...	1	...	...
Norway	146	151	94	1	18	5	145	133	89	112	11	116
Poland	24687	2623	1910	4136	1420	990	20550	1204	920	38	17	34
Romania	599	389	255	54	27	20	545	363	235	21	5	3
Slovenia	141	1035	45	8	226	12	133	809	34	64	35	36
Spain	71194	67795	...	48402	42063	...	22791	25732	...	2698	6315	...
Switzerland	25	30	281	1	3	187	24	27	94	2	1	3
Turkey	6564	9052	13485	3626	3476	8882	2938	5576	4603	54	105	144
Canada	157196	169241	...	8797	3321	...	148399	165920	...	707764	1797729	...

a/ Italy: area of fires on forests only ("excluding other land")

Table 11

Area of fires caused by negligence

(Hectares)

Country	Agricultural operations			Logging and forest operations (including prescribed burning)			Other industrial activities		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Belgium	...	–	...	...	9	...	...	–	...
Croatia	450	839	...	–	–	...	–	–	...
Cyprus	–	7	1	–	–	–	–	–	–
Estonia	46	57	39	–	12	3	–	–	–
Germany	209	1	45	83	25	14	19	1	1
Ireland	350	362	...	–	–	...	4	1	...
Italy	1836	3532	2495	132	220	105	11	100	10
Latvia	...	33	19	...	17	17	...	1	1
Lithuania	5	7	4	0	0	3	0	–	–
Moldova	–	–	–	–	–	–	–	–	–
Poland	1238	201	274	8	19	9	2167	216	146
Romania	200	130	46	9	7	–	8	6	–
Slovenia	54	62	13	3	57	–	1	–	–
Spain	7400	7445	...	798	615	...	449	153	...
Switzerland	2	6	–	2	2	0	0	0	–
Turkey	–	–	–	–	–	–	–	–	–
Canada	15988	90656	...	9939	3000	...	2028	4753	...

Country	Communications			General public			Other		
Belgium	...	–	...	...	32	...	...	2	...
Croatia	–	–	...	–	–	...	3044	5500	...
Cyprus	–	–	–	–	39	4	3	–	–
Estonia	17	35	21	1085	358	268	19	10	–
Germany	111	12	80	156	383	195	1376	142	102
Ireland	–	–	...	72	32	...	–	–	...
Italy	11	372	63	343	522	61	5437	9629	5085
Latvia	...	57	5	...	328	235	...	61	8
Lithuania	13	9	3	704	169	178	–	2	5
Moldova	–	–	–	22	2	215	–	–	–
Netherlands	–	...	...	35	...	...	48	...	...
Poland	14811	117	76	2184	602	400	143	49	16
Romania	–	14	–	295	178	164	33	28	24
Slovenia	63	650	3	4	12	–	8	30	18
Spain	671	1663	...	5194	8102	...	8279	7754	...
Switzerland	1	6	–	20	13	93	0	1	1
Turkey	16	–	288	533	1009	5	2389	4567	4310
Canada	14260	943	...	99594	2405	...	6590	64163	...

Table 12

Losses a/

(National currencies)

Country		Currency	Total value			Wood and other tangible losses			Other		
			1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania b/	1000	US DOLLAR	3	4	12	3	4	12	–	–	–
Belarus	1000	B. ROUBLE	206649	76464	...	68294	10846	...	138355	65618	...
Belgium	1000	FRANCS	1261	1348	...	...	...	...	...	...	...
Bulgaria	1000000	LEVA	18617	143204	...	...	...	...	...	...	...
Croatia c/	1000	D. MARK	12492	22618	...	1136	2056	...	11356	20562	...
Cyprus	1000	POUND	3	52	148	3	52	148	...	...	...
Czech Rep	1000	KORUNA	31500	45500	...	...	...	...	...	...	...
Denmark	1000	D. KRONER	5000	...	...	...	...	...	5000	...	...
Estonia b/	1000	US DOLLARS	338	57	45	160	23	21	179	34	24
Germany	1000	D. MARK	24638	10635	2595	24537	10515	2481	101	120	114
Ireland	1000	POUND	231	146	...	231	146	...	–	–	...
Italy	1000000	LIRE	78100	179479	148659	32101	111449	62739	45999	68030	85920
Latvia b/	1000	US DOLLAR	...	121	96	...	97	80	...	23	15
Lithuania	1000	LITA	736	151	719	648	85	277	88	66	443
Moldova d/	1000	LEU	1	–	1	1	–	1	0	–	0
Netherlands	1000	GUILDERS	10	...	...	10	...	...	...	...	...
Norway	1000	N. KRONER	7257	534	1224	...	...	...	...	...	...
Poland	1000000	ZIOTY	1386200	101058	101858	1386200	101058	101858	...	...	...
Portugal e/	1000000	ESCUDOS	...	...	1688	...	...	1688	...	...	...
Romania	1000	LEI	14536	35485	64336	14536	35485	64336	...	...	...
Russian Federation	1000000	ROUBLE	21	3979	...	7	...	...	14	...	...
Slovenia	1000	TOLAR	9815	76805	364	2620	32172	176	7195	44633	188
Spain	1000000	PESETAS	30789	27888	...	8916	8076	...	21873	19812	...
Turkey	1000000	LIRA 50	64942	224378	...	64942	224378	...	...	...	...
Ukraine	1000	KRB	32643	6038615	...	5976	79743	...	26667	5958872	...

a/ See general notes and explanations of methodologies of estimating losses
b/ Albania, Estonia and Latvia: data reported in US Dollars
c/ Croatia: data reported in DM
d/ Moldova: 1992 data reported in 1000 Rouble
e/ Portugal: data refers to investigated fire occurrences (1 300 fires coreesponding to 17 851 ha)

Table 13

Losses

(1000 US Dollars)

Country	Total value			Wood and other tangible losses			Other		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania	3	4	12	3	4	12	–	–	–
Belarus c/	40	15	...	13	2	...	27	13	...
Belgium	38	37	...	...	...	...	...	...	...
Bulgaria	782	4619	...	...	...	...	...	...	...
Croatia	7740	13105	...	704	1191	...	7036	11913	...
Cyprus	5	99	310	5	99	310	...	...	...
Czech Rep c/	1133	1637	...	...	...	...	...	...	...
Denmark	799	...	...	...	...	...	799	...	...
Estonia	338	57	45	160	23	21	179	34	24
Germany	15265	6162	1675	15203	6092	1602	63	70	74
Ireland	376	206	...	376	206	...	–	–	...
Italy	53097	122020	101067	21824	75769	42653	31273	46251	58413
Latvia	...	121	96	...	97	80	...	23	15
Lithuania c/	189	39	184	166	22	71	23	17	113
Moldova	2	–	0	1	–	0	1	–	0
Netherlands	6	...	...	6	...	...	...	...	...
Norway	1048	71	181	...	...	...	...	...	...
Portugal	...	...	11	...	...	11	...	...	...
Romania	47	47	39	47	47	39	...	...	...
Russian Federation c/	18	3316	...	6	...	...	11	...	...
Slovenia	101	619	364	27	259	176	74	360	188
Spain	268611	196099	...	77785	56788	...	190826	139311	...
Turkey	9450	20427	...	9450	20427	...	...	...	...
Ukraine	51	242	...	9	3	...	42	238	...

a/ See general notes and explanations of methodologies of estimating losses

b/ The data in table 12 was converted in US Dollars using the exchange rates published in "Monthly Bulletin of Statistics", United Nations, New York

c/ Belarus, Czech Republic, Lithuania, Russian Federation no exchange rate available for 1992, 1993 rate used
Poland, no exchange rates available, for values in national currency see table 12

Table 14

Losses (wood volume)

(1000 m3 overbark)

Country	Volume of non recoverable wood								
	Total			Sawlog–size			Other		
	1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania	3	12	14	3	11	13	0	1	1
Austria	2	11	106	...	...	...	...	...	...
Croatia	86	156	...	2	3	...	85	153	...
Cyprus	0	4	1	0	4	1	...	...	...
Estonia	52	7	6	30	2	2	22	5	4
Germany	166	80	173	78	73	98	89	7	74
Ireland	9	3	...	...	0	...	...	2	...
Italy	1062	2441	2022	...	...	...	...	...	...
Latvia	50	8	4	...	...	...	...	...	...
Lithuania	26	5	9	3	0	1	23	4	8
Norway	40	...	...	20	...	...	20	...	...
Russian Federation	111397	122592	...	...	...	...	...	...	...
Slovenia	1	13	61	1	5	18	1	7	43
Spain	106	137	...	106	137	...	...	...	...
Turkey	278	1154	...	227	1105	...	51	49	...
Ukraine	78	174	...	...	...	...	...	...	...

Table 15

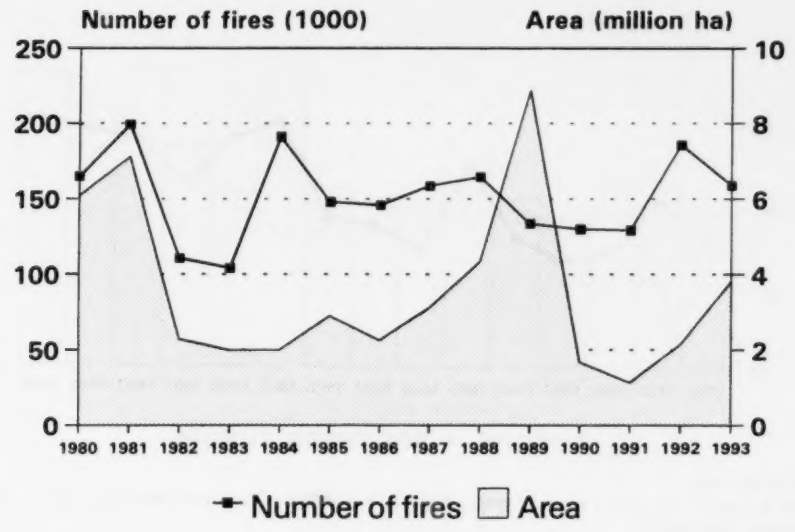
Expenditures on prevention and control a/

(National currencies)

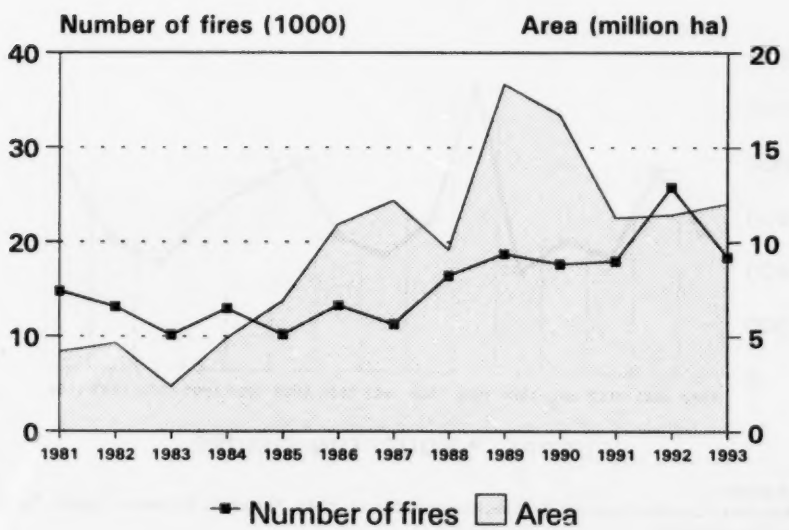
Country		Currency	Total			Forest service			Other (public and private)		
			1992	1993	1994	1992	1993	1994	1992	1993	1994
Albania b/	1000	US $	400	300	200	400	300	200	...	...	...
Austria	1000	SCHILLINGS	13328	12612	13464	3332	3153	3366	9996	9459	10098
Belarus	1000	B. ROUBLE	1062186	13099733	...	...	...	...	...	...	...
Bulgaria	1000000	LEVA	8547	19994	...	8547	19994	...	...	...	...
Croatia c/	1000	D. MARK	8746	8327	...	7246	6327	...	1500	2000	...
Cyprus	1000	POUND	769	869	965	769	869	965	...	...	...
Denmark	1000	D. KRONER	700	...	...	700	...	...	...	...	...
Estonia b/	1000	US DOLLARS	320	809	811	240	794	795	80	15	16
Finland	1000	MARKKAA	2844	...	...	...	...	...	...	...	...
Germany	1000	D. MARK	5993	7297	6349	5907	6955	6188	86	342	161
Ireland	1000	POUND	279	189	...	258	167	...	21	21	...
Italy	1000000	LIRE	46000	63400	67322	46000	63400	67322	...	...	...
Latvia b/	1000	US DOLLAR	...	551	728	...	551	728	...	...	...
Lithuania	1000	LITA	1981	3752	6136	1011	1978	3269	970	1774	2867
Moldova d/	1000	LEU	59408	572	421	54300	518	421	5108	54	...
Netherlands	1000	GUILDERS	375	...	...	375	...	...	...	...	...
Norway	1000	N. KRONER	20000	...	...	...	...	...	...	...	...
Poland	1000000	ZIOTY	1420940	225869	...	1420940	225869	...	...	...	...
Portugal	1000000	ESCUDOS	1008	1420	1743	1008	1420	1743	...	...	...
Romania	1000	LEI	61600	...	...	61600	...	...	...	...	...
Russian Federation	1000000	ROUBLE	578	5952	...	...	...	...	...	...	...
Slovenia	1000	TOLAR	12116	18476	6007	11516	17876	4621	600	600	1386
Spain	1000000	PESETAS	6287	...	...	6287	...	...	...	...	...
Turkey	1000000	LIRA 55	417000	965000	...	417000	965000	...	...	...	...
Ukraine	1000	KRB	2101	48882	...	1680	37808	...	421	11074	...
United Kingdom	1000	POUND 55	419	350	...	419	350	...	...	...	...
Canada	1000000	C. DOLLARS	278	275	...	278	275	...	...	...	...

a/ See general notes and explanations of methodologies of estimating losses
b/ Albania, Estonia and Latvia: data reported in US Dollars
c/ Croatia: data reported in Deutsche Marks
d/ Moldova: 1991 data reported in 1000 Rouble

North America
Number and area of fires



Russian Federation
Number and area of fires



NOTES TO TABLES 12-14: LOSSES FROM FIRES

Countries were asked to describe the method employed in evaluating the losses caused by fires, which are shown in tables 12 (national currencies) and 13 (converted into US dollars). The information provided is summarized below:

Belgium:

The following are taken into account: the loss of the future value of burned trees, or of those trees whose normal growth has been disturbed by fire.

Bulgaria:

The following are taken into account: the value of wood volume destroyed or damaged; the value of young stands destroyed or damaged; and re-establishment costs including: site preparation, cost of plants and cost of planting, plus cost of maintenance and clearing during a period of four years.

Croatia:

Method used for estimating forest fire damage:

The estimated value of wood losses is based on the percent share of the wood categories of the forests burned (e.g. logs x%, pulpwood x%, fuelwood x%), and the market value of these products. To calculate the social value of the forests, which is multiple times greater than the value of the wood mass, the coefficient 10 is used. The total damage is the result of summing together the value of the wood mass and the social value.

Cyprus:

For merchantable stands: commercial value is estimated; for immature stands: the cost of re-establishment is estimated.

Estonia:

Forest fire losses include destroyed and damaged wood, extinguishing expenses, cleaning expenditures and establishment costs for new stands.

Germany:

(1) Estimate of the stand expectation value less the stumpage value plus consequent costs caused by fire (additional planting costs etc.) as well as other material damage

(2) Other damage is estimated according to a material value method (Koch) or other comparable cost estimating methods.

Ireland:

The procedure adopted was to calculate both the value foregone and the potential value of the site. The difference between these two values is the financial loss incurred. The Net Discounted Revenue (NDR) technique has been used to calculate these values.

The Value Foregone is a combination of the NDR of the plantation assuming that it was not burned and its successor crop. The potential Value is the NDR of reforesting the burned site as well as the successor crop. In both instances the successor crop is *Sitka spruce*.

Italy:

The losses of non-recoverable wood are estimated according to the commercial value of the standing timber or the felled timber, whichever it applies, at the time of the fire.

Latvia:

The method of assessing losses includes:

(1) Loss of value of the standing and harvested timber;

(2) Cleaning expenses and restocking of young stands;

(3) Extinguishing costs. Timber prices have considerably increased between 1992 and 1994, this explains the relatively low level of losses in 1992.

Moldova:

The estimation of losses is carried out according to taxes for standing timber, degree of damage and volume of recoverable wood. Other expenses are taken into account such as extinguishing and cleaning costs.

Netherlands:

The sums paid by the insurance companies are taken into account for the estimation of losses.

Norway:

For wood and other tangible losses: includes damage to the productive forest; the value of damage to timber; and in young stands the cost of replanting. The discounting of future values of pre-commercial stands and non-tangible losses is not included; For other losses: includes damage to unproductive forest, non-forest land and other damage (buildings, equipment, etc.) caused by fires on forest and other land. The sums paid by the insurance companies Skogbrand are given.

Poland:

Difference between commercial value of the stand at the time of maturity and the costs of establishment. Methods also used to estimate losses of partly destroyed stands and of special stands (seed stands, reserved forest, experimental forest).

Romania:

The method used to evaluate losses is based on reestablishment costs and timber value.

Russian Federation:

For young stands, losses are estimated by discounting their future value. For mature stands, the methodology used is based on the forest inventory (standing volume per hectare, average diameter of trees, area burned, type and intensity of fire, etc.). Losses refer to non-recoverable wood as a percentage of the total standing volume.

Spain:

Tangible losses: costs of conservation and reforestation of immature stands; plus depreciation of burned timber; plus loss of potential value according to theoretical growth curves. Other losses: cost of restoring soil protection cover; plus income loss from recreational use; plus cost of imports to substitute burned timber; plus fire suppression costs. The following estimated environmental losses are not included in the tables:

1992	1993
(Million Pesetas)	
21.87	19.81

Turkey:

Standing volumes are recorded in the management plans according to species and location. Losses are estimated by calculating the difference between the values given in the management plans and the estimated timber value of stands before the fire.

Ukraine:

Losses from forest fire damage are calculated according to regulations of the Forest Law. These include: for wood losses, the value is calculated according to taxes applicable in a given region; for felled timber losses, the value takes into account price of timber less the fire damage and the felling, skidding and stocking costs; for buildings and equipment, according to their accounting value less a damage percentage. The total value comprises forest regeneration operations and costs of cleaning operations.

United Kingdom:

For the Forestry Commission only the losses due to fire, for years ending on 31 March were as follows:

1992/93	1993/94
(Thousand Pounds)	
114	104

These losses are calculated by accountants as adjustments to the "book value" of the Forestry Commission's estate.

NOTES TO TABLES 15 AND 16: EXPENDITURES ON FIRE PREVENTION AND CONTROL

Countries were invited to provide information on the coverage of their statistics on expenditures and this is summarized below:

Albania:

The expenditures refer to those of the Forest Service for forest fire surveillance, suppression and the elimination of consequences.

Austria:

Expenditure refer to forest fire prevention and control costs reimbursed to the local communities by the Federal Ministry of Agriculture and Forestry.

Belarus:

The breakdown for air and ground protection expenditure is the following:

	1992	1993
	(Thousand B. Roubles)	
Operational expenditures	155 485	1 703 734
Air surveillance	47 970	407 053
Ground surveillance	63 555	2 110 787
Total	127 110	4 221 574

Canada:

The breakdown of Provincial and Territorial Forest Services fire control expenditures is the following:

	1992	1993
	(Million Can. Dollars)	
Budgeted costs	137.761	159.816
Fire fighting costs	139.783	114.956
Total	277.554	274.772

Monetary figures for other public and private expenditures for fire prevention and control are not available. However, these figures would be a small percentage of the Provincial and Territorial Forest Service expenditures.

Cyprus:

Breakdown of expenditures of Forest Service:

	1992	1993	1994
		(C. Pounds)	
Fire fighting	1 562	11 810	8 715
Fire look-out stations	198 880	227 329	277 894
Fire fighting task force	502 258	555 962	603 305
Construction of tracks for vehicles, water tanks, fire traces, etc.	65 893	74 046	75 237
Total	768 593	869 147	965 151

Estonia:

Forest Service expenditures refer to operations performed by airplanes, helicopters and other surveillance costs.

Finland:

Expenditures cover surveillance (tower and air observation) costs only.

Italy:

Covers fire suppression and equipment by the State Forest Service.

Latvia:

The method of estimation includes expenses for the upkeeping of fire breakout lines along roads, lookout towers, water reservoirs, access roads, communications and other fire service expenditure.

Moldova:

Expenditure on prevention and control comprises direct (cleaning and extinguishing costs) and indirect expenses. Indirect expenses include PR prevention campaigns, road and vehicle maintenance communications and salary costs.

The Netherlands:

Only the expenditures on forest fire prevention and control in State forests are known (labour, and small equipment). All fire control is done by regional fire services, which have no separate budget for the different type of fire suppression.

Norway:

Only expenditure on prevention are shown in tables 15 and 16.

Poland:

Data relate only to recurrent and occasional expenditure. Data on capital expenditure (investments) for forest fire prevention and control are not included.

Portugal:

Expenditure refers to prevention measures, excluding extinguishing costs.

Romania:

Expenditures include information costs, surveillance costs (fire look-out stations) and fire fire fighting equipment and material.

Russian Federation:

Expenditures include aircraft and land surveillance costs, forest fire prevention publications and campaigns and actual fire-fighting.

Spain:

Expenditure includes the investments in airplane equipment, 633 million Pesetas in 1991.

Ukraine:

Expenditures on prevention and control include worker's wages and fire brigade's costs, expenses for aircraft and other machines and equipment, costs of chemicals for fire control and other miscellaneous costs.

United Kingdom:

The information on expenditure on forest fire prevention and control refers to Forestry Commission and Northern Ireland Forest Service woodlands (less than 40% of total). Figures are for years ending on 31 March.

DEFINITIONS USED IN THE ENQUIRY

Except that for "other land" the definitions are taken from the FAO/ECE Forest Resource Assessment 1990.

Forest and other wooded land
Land under natural or planted stands of trees, whether productive or not. Includes land from which forest has been cleared but that will be reforested in the foreseeable future. It includes areas occupied by roads, small cleared tracts and other small open areas within the forest which constitute an integral part of the forest.

Forest
Land with tree crown cover (stand density) of more than about 20% of the area. Continuous forest with trees usually growing to more than about 7 m in height and able to produce wood. This includes both closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground and open forest formations with a continuous grass layer in which tree synusia cover at least 10% of the ground.

High forest
Forest normally composed of trees of seedling origin. Included are other kinds of forest in process of transformation into high forest.

Coniferous
All trees classified botanically as Gymnospermae. These are sometimes referred to as softwoods.

Broadleaved (non-coniferous)
All trees classified botanically as Angiospermae. These are sometimes referred to as non-coniferous or hardwoods.

Coppice and coppice with standards
Forest composed of stool-shoots or root suckers with or without scattered trees of seedling origin (standards).

Other wooded land
Land which has some forestry characteristics but is not forest as defined above. It includes: |open woodland and scrub, shrub and brushland (see below), whether or not used for pasture or range. It excludes land occupied by "trees outside the forest"

Open woodland: Land with tree crown cover (stand density) of about 5-20% of the area.

Scrub, shrub and brushland: Land with scrub, shrub or stunted trees where the main woody elements are shrubs (usually more than 50 cm and less than 7 m in height), covering more than about 20% of the area, not primarily used for agricultural or other non-forestry purposes, such as grazing of domestic animals.

Ownership status

Public
Forest and other wooded land belonging to State and other public bodies.
- State: Forest and other wooded land owned by national, state, and regional governments or by government-owned corporations; Crown forests;

- Other public: Forest and other wooded land area belonging to towns, villages and communes. Includes any other publicly owned forest and other wooded land not elsewhere specified.

Private
Forest and other wooded land which is:
(a) owned by private forest (wood-processing) industries;
(b) owned by private corporations and institutions (religious, educational, pension funds, etc.);
(c) farm forest: owned by individuals, families or corporations engaged in agriculture as well as forestry;
(d) other: privately owned not elsewhere specified.

Other land
Land which, although not falling within the definition of "forest and other wooded land" has nonetheless been included in national forest fire statistics. Such land may include heathland, waste land or agricultural land adjoining or enclosed by forest land.

SOME FACTS ABOUT THE TIMBER COMMITTEE

The Timber Committee is a principal subsidiary body of the ECE (UN Economic Commission for Europe) based in Geneva. It constitutes a forum for cooperation and consultation between member countries on forestry, forest industry and forest product matters. All countries of Europe; the former USSR; United States of America, Canada and Israel are members of the ECE and participate in its work.

The ECE Timber Committee shall, within the context of sustainable development, provide member countries with the information and services needed for policy- and decision-making regarding their forest and forest industry sector ("the sector"), including the trade and use of forest products and, when appropriate, formulate recommendations addressed to member Governments and interested organizations. To this end, it shall:

1. With the active participation of member countries, undertake short-, medium- and long-term analyses of developments in, and having an impact on, the sector, including those offering possibilities for the facilitation of international trade and for enhancing the protection of the environment;

2. In support of these analyses, collect, store and disseminate statistics relating to the sector, and carry out activities to improve their quality and comparability;

3. Provide the framework for cooperation e.g. by organizing seminars, workshops and *ad hoc* meetings and setting up time-limited *ad hoc* groups, for the exchange of economic, environmental and technical information between governments and other institutions of member countries that is needed for the development and implementation of policies leading to the sustainable development of the sector and to the protection of the environment in their respective countries;

4. Carry out tasks identified by the UN-ECE or the Timber Committee as being of priority, including the facilitation of subregional cooperation and activities in support of the economies in transition of central and eastern Europe and of the countries of the region that are developing from an economic point of view;

5. It should also keep under review its structure and priorities and cooperate with other international and intergovernmental organizations active in the sector, and in particular with the FAO (Food and Agriculture Organisation) and its European Forestry Commission and with the ILO (International Labour Organisation), in order to ensure complimentarily and to avoid duplication, thereby optimizing the use of resources.

More information about the Committee's work may be obtained by writing to:

Timber Section
UN-ECE Trade Division
Palais des Nations
CH-1211 Geneva 10, Switzerland
Fax: 41 22 917 0041

UN-ECE/FAO PUBLICATIONS

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***Timber Bulletin** Volume XLVIII (1995)	ECE/TIM/BULL/48/...

(Six issues per year)

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2. Forest Products Statistics
3. Forest Products Annual Market Review
4. Forest Fire Statistics
5. Forest Products Trade Flow Data
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***UN-ECE/FAO Timber and Forest Study Papers**

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(Country profiles also exist on Albania, Bulgaria, former Czech and Slovak Federal Republic, Estonia, Hungary, Lithuania, Poland, Romania and Slovenia)	
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